

# USB Oscilloscope

NOV@TEK

## Nov@tek Oscilloscope and Spectrum Analyzer

### Introduction



The 2-channel digital storage oscilloscope at an outstanding price! When connected to PC with USB2.0 interface, you get a fully-featured storage oscilloscope with the extra advantage of being able to easily store data for later processing. This device has two independent channels on which you can record signals up to 200 MHz. The program screen emulates a conventional oscilloscope. The Auto Set function adjusts the settings automatically to the current signal, and the extensive trigger functions make it very simple to operate.

The expanded spectrum analyzer windows including the FFT analysis and the multi-kinds of measurements are more powerful tools in data analysis. Simply press a button to transfer the on-screen data to an Excel file for further processing and the waveform can be recalled as a reference for comparison with the new one.

### Model Selection

Product	Channels	Bandwidth	Sampling Rate	Memory	Resolution
<b>DSO-2090 USB</b>	2 + External trigger	40 MHz	100 MS/s	64 KB	8 bits
<b>DSO-2150 USB</b>	2 + External trigger	60 MHz	150 MS/s	64 KB	8 bits
<b>DSO-2250 USB</b>	2 + External trigger	100 MHz	250 MS/s	1 MB	8 bits
<b>DSO-2500 USB</b>	2 + External trigger	200 MHz	500 MS/s	1 MB	8 bits
<b>DSO-5200 USB</b>	2 + External trigger	200 MHz	Realtime: 200 MS/s Equiv.Sampling: 50GS/s	28 KB	9 bits
<b>DSO-5200A USB</b>	2 + External trigger	200 MHz	Realtime: 250 MS/s Equiv.Sampling: 50GS/s	1 MB	9 bits

### Features

#### USB2.0 PC interface

The true USB2.0 interface allows fast data transfer rate that ensures a quick screen update rate, even when collecting large amounts of data.

The plug&play character is very convenient for user to set up and connect the instrument to PC.

The device is powered directly from the USB bus that reduces the traditional power transformer.

The USB2.0 driver is compatible with USB1.1

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**Large Memory** buffer allow the capture of fast and complex signals

The large buffer memory 512K enables the fast sampling rate and fast data acquisition.

## Long time sweep

The long time sweep (5ns-1hour) makes the waveform in a scrolling mode to enable the user to observe and record the signals of long period or the events.

## With the external trigger channel

### Built-in interface sockets for the 2<sup>nd</sup> development

Since there's large demand of the 2<sup>nd</sup> development, we leave already the interface sockets on the PCB for engineers to connect with their own equipments.

## Portable

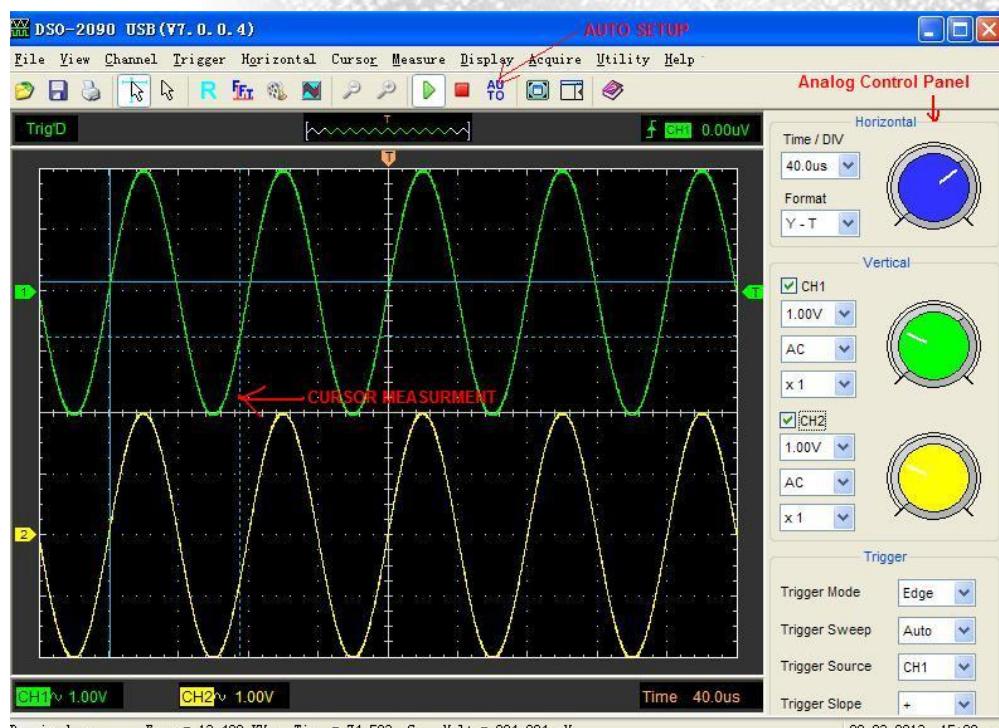
Small size(mm):190(L)x100(W)x40(H) , light weight: 380g , easy to carry.

## Software

### Easy control Panel

Easy Control and Cursor Measurement emulates the conventional bench type oscilloscopes and is very intuitionistic and convenient.

### Cursor Measurement to test the Vpp, Frequency, Period, etc.

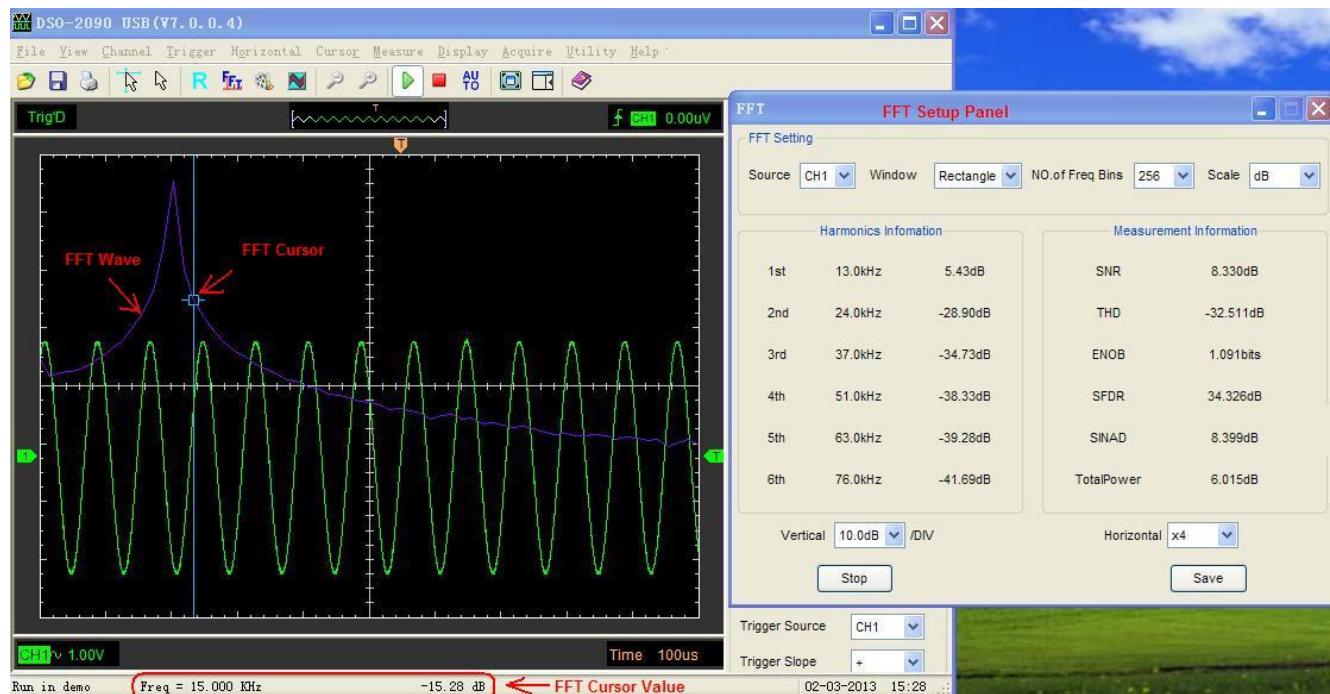


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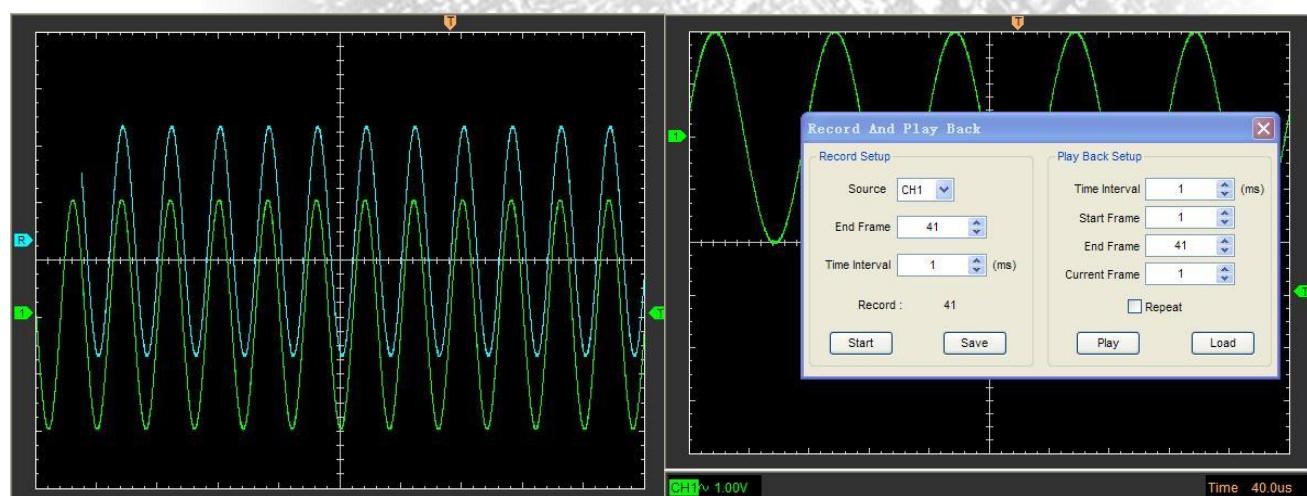
The expanded spectrum analyzer FFT windows with the settable Windows Type (Rectangular, Hanning, Hamming, Blackman), Frequency Bins, Scale Type, Vertical scale, Frequency Scales, etc.



**The 23 kinds measurements:** Vp-p, Vmax, Vmin, Vmean, Vrms, Vamp, Vhigh, Vlow, positive overshoot, negative overshoot, cycle mean, cycle rms, period, frequency, positive pulse width, negative pulse width, rise time(10% ~ 90%), fall time(10% ~ 90%), positive duty cycle, negative duty cycle

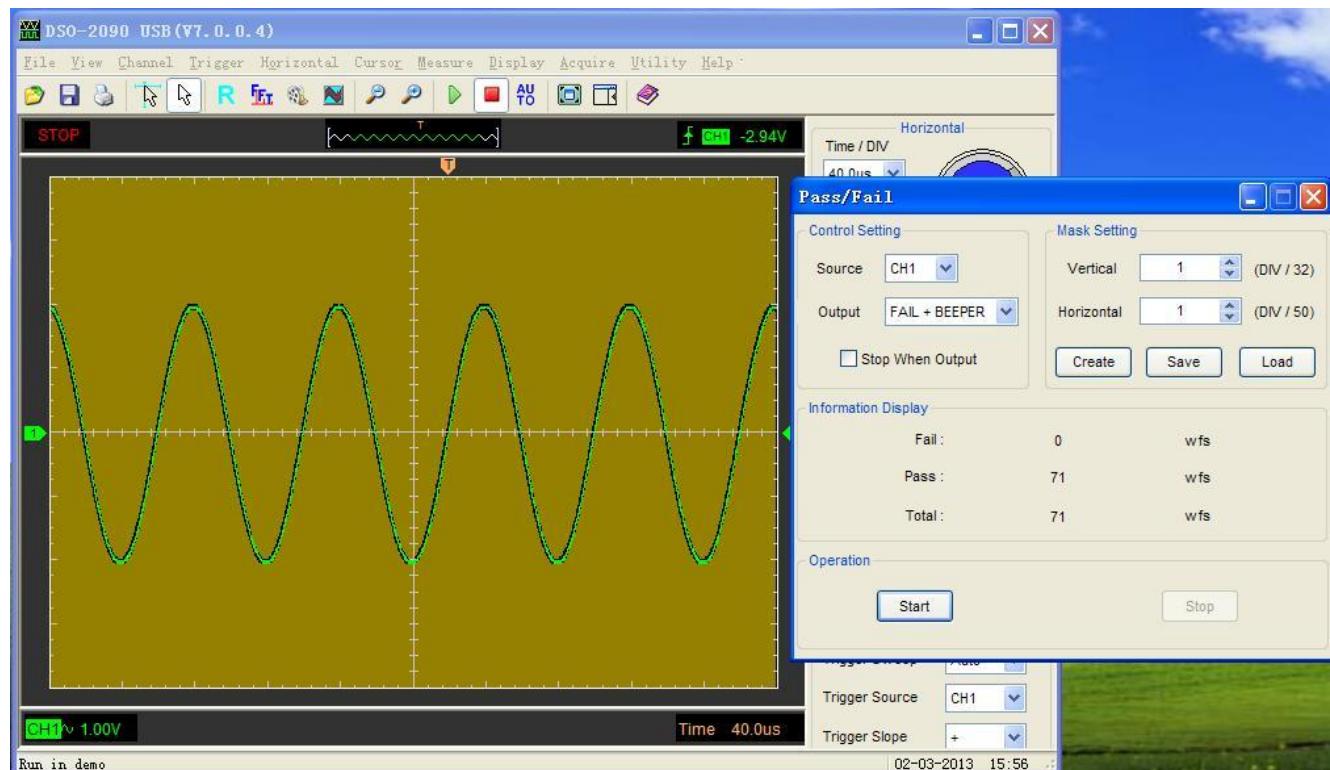
And Math: Addition, subtraction, multiplication, division

## Reference Waveform and Waveform Recorder



## Pass/Fail check

The Pass/Fail function is very useful in checking if the error of a new waveform is beyond the preset limit from an original saved waveform.



Waveform output into Excel / Word/ Txt / Jpg/ Bmp format.

	A	B	C	D
1	#CLOCK=0.000040000			
2	#SIZE=10240		CSV File	
3	-2	0	0	
4	-2	0	0	
5	-2	0	0	
6	-2	0	0	
7	-2	0	0	
8	-2	0	0	
9	-2	0	0	
10	-2	0	0	
11	-2	0	0	
12	-2	0	0	
13	-2	0	0	
14	-1.9375	0	0	
15	-2	0	0	
16	-2	0	0	

## Specification

See next page →

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		DSO-2090 USB	DSO-2150 USB	DSO-2250 USB	DSO-2500 USB	DSO-5200 USB	DSO-5200A USB					
1	<b>Max. sample rate</b>	Realtime sampling: 100MS/s	Realtime sampling: 150MS/s	Realtime sampling: 250MS/s	Realtime sampling: 500MS/s	Realtime sampling: 200MS/s using one channel, 100MS/s using two channels ;Equivalent sampling:50GS/s	Realtime sampling: 250MS/s using one channel, 125MS/s using two channels ;Equivalent sampling:50GS/s					
2	<b>Bandwidth</b>	40MHz(-3dB)	60MHz(-3dB)	100MHz(-3dB)	200MHz(-3dB)							
		Single shot bandwidth:40MHz	60MHz	100MHz	200MHz	100MHz	125MHz					
3	<b>Buffer size</b>	10K~ 64K samples		10K ~ 1M samples	10K~1M	10K~28K	10K ~ 1M samples					
4	<b>Channels</b>	2										
5	<b>Voltage Range</b>	10mV ~ 5V/div @ x1 probe				10mV ~ 10V/div @ x1 probe						
		( 10mV, 20mV, 50mV, 100mV, 200mV, 500mV, 1V, 2V, 5V, /div 1,2,5 sequence)				(10mV, 20mV, 50mV, 100mV, 200mV, 500mV, 1V, 2V, 5V, 10V/div 1,2,5 sequence)						
		100mV ~ 50V/div @ x10 probe				100mV ~ 100V/div @ x10 probe						
		1V ~ 500V/div @ x100 probe				1V ~ 1000V/div @ x100 probe						
		10V ~ 5000V/div @ x1000 probe				10V ~ 10000V/div @ x1000 probe						
6	<b>Accuracy</b>	±3%				±2%						
7	<b>Timebase range</b>	4ns/div ~1h/div( 1-2-4 sequence)			2ns/div ~ 1h/div( 1-2-4 sequence)							
8	<b>Offset level</b>	+/4 divisions										
9	<b>Coupling</b>	AC, DC, GND										
10	<b>Offset increments</b>	0.03div			0.02div							
11	<b>Impedance</b>	1M ohm										
12	<b>Input protection</b>	Diode clamping.		35Vpk(DC + peak AC , without external attenuation)								

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1s/div ~ 1h/div

13	Roll mode	
14	Resolution	8Bit
15	Range	10 divisions
16	Pre/Post trigger	0% ~ 100%
17	Trigger TYPE	Edge trigger: Rising edge, falling edge
18	Trigger Mode	Auto, Normal and Single
19	Trigger Source	CH1,CH2, EXT
20	X-Y Mode	Yes
21	Autoset	Yes
22	Settabillity	0.03 div increments
23	Trigger level	adjustable: +/-4 divisions
24	Measurements	Vp-p, Vmax, Vmin, Vmean, Vrms, Vamp, Vhigh, Vlow, positive overshoot, negative overshoot, cycle mean, cycle rms, period, frequency, positive pulse width, negative pulse width, rise time(10% ~ 90%), fall time(10% ~ 90%), positive duty cycle, negative duty cycle
25	Cursor	Time/frequency difference, voltage difference
26	Math	Addition, subtraction, multiplication, division
27	FFT	Rectangular, Hanning, Hamming, Blackman Window
28	Interface	Universal Serial Bus(USB2.0)
29	Power	No external power source required. * Bus-powered from USB
30	Calibration Signal Output	2V, 1kHz, Square Wave
31	Vertical Mode	CH1, CH2, DUAL, ADD
32	Waveform Display	Point/Line , Average Waveform, Persistence, Intensity Adjustment
33	Vertical Position Variable	Yes

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# USB Oscilloscope

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On/Off

34	<b>Grid</b>	
35	<b>File management</b>	Image save: BMP, JPG
		Data save:dso
		OLE(Object Linking and Embedding) automation: Data generation for Microsoft Excel
		Setting save/load
36	<b>Print</b>	Print in color/black&white
37	<b>S/W compatibility</b>	Windows 2000/XP/Vista
38	<b>Labview driver</b>	Yes
39	<b>Dimension</b>	187x100x33 mm

## Order info

USB Oscilloscope 1pc  
USB cable 1pc  
English Manual 1pc  
Software CD 1pc  
Probes 2pcs (optional)